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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : C12N 15/12, C07K 14/715, C12N 15/62, C07K 14/52, 16/28, G01N 33/68, A61K 38/17		A3	(11) International Publication Number: <b>WO 96/22371</b> (43) International Publication Date: 25 July 1996 (25.07.96)
(21) International Application Number: PCT/US96/00608 (22) International Filing Date: 19 January 1996 (19.01.96) (30) Priority Data: 08/375,199 19 January 1995 (19.01.95) US (60) Parent Application or Grant (63) Related by Continuation US 08/375,199 (CIP) Filed on 19 January 1995 (19.01.95) (71) Applicants (for all designated States except US): LEUKOSITE, INC. [US/US]; 215 First Street, Cambridge, MA 02142 (US). BRIGHAM AND WOMEN'S HOSPITAL [US/US]; 75 Francis Street, Boston, MA 02115 (US). CHILDREN'S MEDICAL CENTER CORPORATION [US/US]; 300 Longwood Avenue, Boston, MA 02115 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): GERARD, Craig, J. [US/US]; 117 Walpole Street, Dover, MA 02030 (US). GERARD, Norma, P. [US/US]; 117 Walpole Street, Dover, MA 02030 (US). MACKAY, Charles, R. [AU/US]; 150 Dedham Street, Newton Highlands, MA 02161 (US).		PONATH, Paul, D. [US/US]; 45 Upton, No. 3, Boston, MA 02118 (US). POST, Theodore, W. [US/US]; 14 Mandalay Road, Newton, MA 02159 (US). QIN, Shixin [CN/US]; 14 Taft Avenue, Lexington, MA 02173 (US). (74) Agents: BROOK, David, E. et al.; Hamilton, Brook, Smith & Reynolds, Two Militia Drive, Lexington, MA 02173 (US). (81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AZ, BY, KG, KZ, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.          Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the International search report: 17 October 1996 (17.10.96)	
(54) Title: C-C CHEMOKINE RECEPTOR 3: CKR-3 or. Eos-L2			
(57) Abstract  The present invention relates to isolated and/or recombinant nucleic acids which encode a mammalian (e.g., human) receptor protein designated C-C Chemokine Receptor 3 (CKR-3) or Eos L2, and to proteins or polypeptides, referred to herein as isolated, recombinant mammalian CKR-3 receptors. The invention further relates to recombinant nucleic acid constructs comprising a nucleic acid which encodes a receptor protein of the present invention or a portion thereof; to host cells comprising such constructs, useful for the production of recombinant CKR-3 receptors or polypeptides; and to antibodies reactive with the receptors, which are useful in research and diagnostic applications. Also provided are methods of use of the nucleic acids, proteins, and host cells to identify ligands, inhibitors (e.g., antagonists) or promoters (agonists) of receptor function. Administration of a compound which inhibits or promotes receptor function to an individual in need of therapy provides a new approach to selective modulation of leukocyte function, which is useful in a variety of inflammatory and autoimmune diseases, or in the treatment of infections. As a major leukocyte chemokine receptor present in leukocytes such as eosinophils and lymphocytes, the receptor provides a key target for drug screening and design.			

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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 96/00608

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 C12N15/12 C07K14/715 C12N15/62 C07K14/52 C07K16/28  
G01N33/68 A61K38/17

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 C07K C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JOURNAL OF EXPERIMENTAL MEDICINE, 177 (5). 1993. 1421-1427., XP000579252 GAO J-L ET AL: "STRUCTURE AND FUNCTIONAL EXPRESSION OF THE HUMAN MACROPHAGE INFLAMMATORY PROTEIN 1-ALPHA RANTES RECEPTOR" cited in the application see the whole document ---	1,24,26, 27,30, 34,35, 38,40, 43,44
A	J EXP MED, MAR 1 1994, 179 (3) P881-7, UNITED STATES, XP000600041 JOSE PJ ET AL: "Eotaxin: a potent eosinophil chemoattractant cytokine detected in a guinea pig model of allergic airways inflammation." see the whole document ---	1,24,26, 27,30, 34,35, 38,40, 43,44
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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Date of the actual completion of the international search

23 August 1996

Date of mailing of the international search report

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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 96/00608

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	J EXP MED, FEB 1 1994, 179 (2) P751-6, UNITED STATES, XP000600044 DAHINDEN CA ET AL: "Monocyte chemotactic protein 3 is a most effective basophil- and eosinophil-activating chemokine." see the whole document ---	1,24,26, 27,30, 34,35, 38,40, 43,44
A	WO,A,92 01810 (LERNER MICHAEL R ;LERNER ETHAN A (US)) 6 February 1992 see abstract; claims 1-17 ---	40,43,44
A	WO,A,94 11504 (GENENTECH INC) 26 May 1994 cited in the application  see examples 1,2 ---	1,24,26, 27,30, 34,35, 38,40, 43,44
A	CELL, 72 (3). 1993. 415-425., XP002011150 NEOTE K ET AL: "MOLECULAR CLONING FUNCTIONAL EXPRESSION AND SIGNALING CHARACTERISTICS OF A C-C CHEMOKINE RECEPTOR" see the whole document ---	1,24,26, 27,30,35
A	EP,A,0 475 746 (TAKATSU KIYOSHI) 18 March 1992 see page 6, line 19 - line 24 ---	1,24,26, 27
P,X	JOURNAL OF BIOLOGICAL CHEMISTRY, 270 (28). 1995. 16491-16494., XP002011151 COMBADIÈRE C ET AL: "Cloning and functional expression of a human eosinophil CC chemokines receptor" see the whole document ---	1-29
T	J BIOL CHEM, MAR 29 1996, 271 (13) P7725-30, UNITED STATES, XP002011152 KITAURA M ET AL: "Molecular cloning of human eotaxin, an eosinophil-selective CC chemokine, and identification of a specific eosinophil eotaxin receptor, CC chemokine receptor 3." ---	1-29
T	J EXP MED, MAY 1 1996, 183 (5) P2349-54, UNITED STATES, XP000600043 DAUGHERTY BL ET AL: "Cloning, expression, and characterization of the human eosinophil eotaxin receptor." see the whole document ---	1-29
E	WO,A,96 22371 (LEUKOSITE INC ;BRIGHAM & WOMENS HOSPITAL (US); CHILDRENS MEDICAL C) 25 July 1996 see the whole document -----	1-46

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 96/00608

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
Please see Further Information sheet enclosed.
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International Application No. PCT/US96/00608

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

Remark: Although claim 48, and claim 47 partially as far as it concerns an in vivo method, are directed to a method of treatment of the human/animal body the search has been carried out and based on the alleged effects of the composition.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 96/00608

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO-A-9201810	06-02-92	US-A- 5462856 EP-A- 0539518 JP-T- 6502757	31-10-95 05-05-93 31-03-94
WO-A-9411504	26-05-94	EP-A- 0669979 JP-T- 8503463	06-09-95 16-04-96
EP-A-0475746	18-03-92	JP-A- 6054690 US-A- 5453491	01-03-94 26-09-95
WO-A-9622371	25-07-96	NONE	